

Answers to Your Questions



about **Groundwater**



The Wisconsin Department of Natural Resources Bureau of Drinking Water & Groundwater would like to thank the Groundwater Coordinating Council (GCC) Education Sub-Committee for their part in the development and editing of this publication. For more information on the GCC, it's member organizations and programming, please visit www.wisconsin.gov. Choose "Government," "State Agencies," followed by "List of Agencies" then select "Groundwater Coordinating Council."

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Approximately two-thirds of the people in Wisconsin obtain their drinking water from groundwater. If your water comes from a well, public or private, you're one of these people! Groundwater is also essential for Wisconsin's farm and business communities.

Groundwater is replenished by rain and melting snow that percolates through the soil. Most wells in Wisconsin tap groundwater, which is usually less than 50 feet below the ground surface and originates within a few miles or less from the well. Groundwater feeds surface water resources, such as lakes and rivers, providing a base flow level and helping to keep water levels consistent.

Groundwater Problems

What contaminants are most frequently found in Wisconsin groundwater?

Both naturally-occurring and chemical contaminants have been found in Wisconsin's groundwater.



Naturally-occurring contaminants are those that may be present in Wisconsin's groundwater due to natural geologic factors, such as mineral deposits, or other factors within the environment that are independent of any human activities. The most commonly detected naturally-occurring contaminants are arsenic, bacteria, barium, chloride, copper, fluoride, hydrogen sulfide, iron, lead, manganese, parasites and viruses, radium, radon, sulfate, uranium and zinc.

Any chemicals used by humans have the potential to become groundwater pollutants. Some of these items, such as arsenic, also occur naturally but when used and improperly disposed of, they become a threat to groundwater quality. Arsenic, alachlor, atrazine, bacteria, benzene, chloroform, nitrate, toluene, trichloroethylene (TCE), parasites and viruses are some of the most common chemicals detected in groundwater.



Both naturally-occurring and chemical contaminants can become of concern to human health when concentrations go above established health advisory levels. The health advisory level, or maximum contaminant level (MCL), is set by federal and state government for drinking water systems or the groundwater enforcement standards (ES) for groundwater. There are many brochures with more information on common contaminants and recommendations for private well maintenance available from your local Department of Natural Resources (DNR) drinking water & groundwater specialist or the DNR Drinking Water and Groundwater Web site at www.dnr.state.wi.us/org/water/dwg/.





Should I drink water that exceeds groundwater standards or health advisory guidelines?

DNR staff recommend that you do not drink water exceeding the health advisory guidelines, but the choice is ultimately yours. Bacterial contamination can cause acute illness in a short period of time, so if your water tests positive for bacteria, you should stop drinking the water and contact a water professional for advice. For chemical contamination however, the effect on any person will depend on the type and degree of contamination, the amount of water consumed and the person's resistance to that contamination, which depends on a person's age and other coexisting health problems.

Is it possible that my well water is making my livestock or me sick?

Waterborne disease caused by bacteria, viruses, or chemicals is possible. Anytime you or your livestock become ill, feel tired or sluggish, you should contact your family doctor or veterinarian. If it is determined your water supply could be the cause of the illness, he or she should contact your local health department, local DNR drinking water & groundwater specialist or the Wisconsin Department of Health and Family Services (DHFS).



Can you tell me why my water suddenly has a strange odor or taste?

Without sampling and analyzing the water, it's often impossible to tell precisely why it has a strange odor or taste. If you notice a sudden change in your water, there may be reason for concern. Sudden changes occur for a number of reasons, such as large rainfall events flushing contaminants into or through the groundwater aquifer, where they may enter your well and water supply.



Because contaminants from distant sources may also move into your well through normal groundwater flow through the aquifer, it is recommended that you test your private well annually and when ever you notice a sudden change.

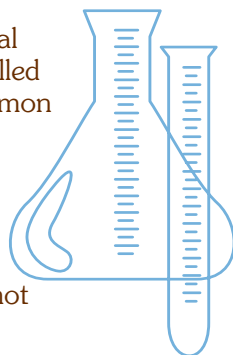
Are there shortages of groundwater in Wisconsin?

There is ample groundwater by volume throughout the state. There may however be limited supplies of clean groundwater in some areas due to contamination. Also, in some areas of the state, there may be problems extracting ample groundwater volume because of specific geologic formations.

Groundwater Responsibility

Why isn't every private well in the state tested?

Well owners are responsible for testing their individual well. Current regulations require that every newly drilled private well in Wisconsin be tested for the most common contaminant, bacteria. DNR drinking water & groundwater specialists also recommend that new wells be tested for nitrate. Depending on nearby contaminant sources and land use, further testing may be advised. There are about 800,000 private wells in Wisconsin and the State of Wisconsin does not have funding to test each well independently.



What state agencies regulate and protect groundwater quality and other items related to groundwater use Wisconsin?

A number of state agencies have authority under Wisconsin statutes and administrative rules to regulate activities that can affect groundwater quality. For example, the Department of Commerce (Comm) regulates underground petroleum storage tanks and on-site waste water treatment systems. The Department of Agriculture, Trade and Consumer Protection (DATCP) regulates pesticide and herbicide mixing sites and application, livestock health issues, and fertilizer storage, handling, and mixing. The DNR regulates wastewater treatment systems, confined animal feeding operations, landfills and hazardous waste disposal sites, spills, well construction, sealing, and pump installations.

Can I contaminate my drinking water supply or that of a neighbor by using chemicals on my lawn or by pouring waste oil or gasoline on the ground or disposing of contaminants down my septic system?

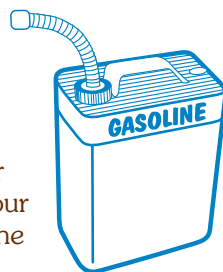


Yes, it is possible to contaminate your well, your neighbor's well and the rest of the surrounding groundwater through the improper use or disposal of chemicals or septic waste. However if you follow the manufacturer's application instructions carefully normal use of these chemicals should not cause groundwater quality problems. In general, DNR drinking water &

groundwater staff recommend that you avoid heavy lawn chemical applications near any well. Avoid spraying near the well casing or cap.

Avoid misuse or over-application. Also, keep your septic system properly maintained and do not dispose of chemicals or materials down the drain that can hinder the septic system's working effectiveness.

Gasoline spills and leakage from underground storage tanks have been responsible for many contamination incidents. However, small amounts of oil or gasoline dripping from vehicles onto the ground surface usually do not cause serious groundwater quality problems. Soil and groundwater conditions, well construction and the condition of your well also play a major role in whether the well and the surrounding groundwater becomes contaminated.



Who pays to clean up contaminated groundwater?

Complete groundwater cleanup is seldom possible and is always expensive. The general rule is to determine a responsible party for the contamination and require them to pay for cleanup. If a responsible party can't be found or is unable to pay, then the state or federal government may be forced to accept the cleanup costs. Thus we all pay indirectly through our taxes or higher product costs.

How can I be sure my community's water supply is safe now and in the future?



Community water systems are sampled and tested regularly. Contact your water utility about yearly monitoring or read their consumer confidence report (CCR). Ask if your system has a wellhead protection or source water protection plan in place or if your local government is considering the implementation of one. A wellhead protection

plan is designed to protect a water supply for present and future generations. It involves identifying the area contributing recharge to a well, identifying potential contamination sources and developing and implementing the plan to protect the identified recharge area from contamination. A source water protection plan is a similar plan for protection of surface water derived drinking water supplies. You can find out more by visiting the DNR Drinking Water & Groundwater Web site at www.dnr.state.wi.us/org/water/dwg/gw/whp.htm.

Are there limits on how much groundwater can be pumped?

Under current law, a high capacity well permit is required from the DNR for a well or combination of wells on a single property that pump over 70 gallons per minute.

There is however, no limit on the amount of groundwater that you can pump over 70 gal/min unless it would have an adverse effect on an existing public water utility well.

Groundwater Solutions

What can I do if my well runs dry?



The best advice is to prevent this from happening through individual and community conservation efforts. However, if indeed your well does run dry there are three main options:

- 💧 First, see if lowering your well pump would provide you with enough water. Purchase of a new well pump may be necessary depending on depth and pump capacity.
- 💧 Second, you can deepen your existing well along with lowering the well pump.
- 💧 Third, you can drill a new well in another location.

How can I have my well tested for bacteria, nitrate, or other compounds?

Private well owners are responsible for maintaining the quality of their water supply. There are two publications that can help get you started: *Tests for Drinking Water From Private Wells*, PUB DG-023 and *You and Your Well*, PUB DG-002. These publications will provide you with basic information on sampling and testing your private well. Both are available through your local DNR service center and on the DNR Web site at www.dnr.state.wi.us/org/water/dwg/WELLTEST and www.dnr.state.wi.us/org/water/dwg/yywell.htm respectively.



Certified laboratories can also help you with information, materials and instruction on sampling and testing your well. There are a number of laboratories statewide. A list of certified labs is available from the DNR or online at www.dnr.state.wi.us/org/water/dwg/WELLTEST or check your local yellow pages.



How often should I have my well tested?

You should have your well tested for bacteria at least annually, or if changes in taste, color or odor occur. DNR drinking water & groundwater staff also recommend that you test your water for nitrate if you are pregnant or have children less than 6 months of age.

If my well was found to be contaminated, who can give me advice on corrective action?

Different contaminants require different actions. The well owner can carry out some; other actions may require professional expertise. Contact a local well driller or pump installer, or your local DNR drinking water & groundwater specialist for advice on your particular contamination situation. They can provide advice on either rehabilitating your existing well or constructing a new well.



What recourse do I have if someone contaminates my drinking water supply?

It is often difficult to trace a single source of groundwater contamination without extensive investigation. If you believe someone has contaminated the groundwater and your drinking water, keep a complete record of the situation.

Contact your DNR drinking water & groundwater specialist for advice and assistance. Further groundwater sampling and hydrologic study may be necessary to determine the source of contamination and the steps needed to correct the problem.

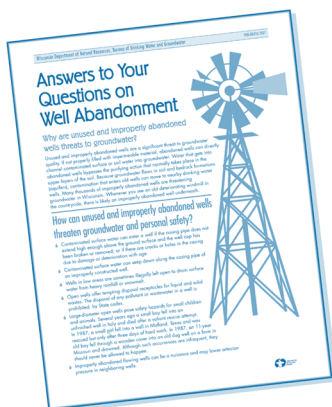
If you can identify the source of groundwater contamination and prove negligence, you may want to consider legal action to recover damages. The State Attorney General or local district attorney may bring suit if someone is acting illegally or causing a public nuisance. An attorney can advise you of your rights in individual cases.

Are home water treatment units and water softeners effective in removing harmful contaminants from well water?

Water softeners are effective primarily in removing hardness and radium. Other types of home treatment devices are more effective in removing other contaminants. The Department of Commerce has approved a large number of treatment devices. A list of specific contaminants and a defined range of effectiveness for each approved treatment unit is available by e-mail at Robert.Schaefer@dnr.state.wi.us or by calling Bob at (608)266-3415. However, usually replacing your well is a better long-term solution to a drinking water contamination problem. For more information, contact your local DNR drinking water & groundwater specialist.

If my well requires replacement due to contamination, how will I pay for it?

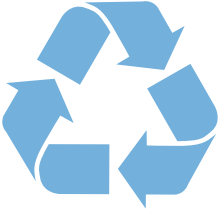
Normally, homeowners insurance doesn't cover well replacement costs. You should contact your insurance agent to be sure. However, the State of Wisconsin has a Well Compensation program administered through DNR. This program may pay up to a maximum of 75% of costs for a replacement water supply. Well owners with an income level above \$65,000 do not qualify. Owners with an income of \$45,000 or below may qualify for the maximum benefit. Contact your regional DNR drinking water & groundwater specialist, prior to replacing your well, for more information. You may find more at www.dnr.state.wi.us/org/water/dwg/wellcomp.htm.



What should I do if a well on my property isn't being used?

Unused wells can be a safety hazard and can act as a conduit for groundwater contamination. The state well code contains requirements for the proper filling and sealing of unused private wells, in a procedure known as “well abandonment.” A brochure titled *Answers to Your Questions on Well Abandonment*, PUB DG-016 is available through your local DNR service center or on the Web at

www.dnr.state.wi.us/org/water/dwg/wellaban.htm. You may also get additional information from local well drillers, pump installers, and your local DNR drinking water & groundwater specialist.



What can I do as an individual to help protect the groundwater or reduce excessive use in my community?

There are many things an individual can do to help protect groundwater and reduce excessive use. These include, but are not limited to the following:

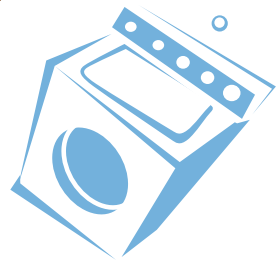
- 💧 Recycle and dispose of household waste properly
- 💧 Recycle used motor oil
- 💧 Recycle used antifreeze
- 💧 Avoid spilling gasoline on the ground
- 💧 Follow label direction on fertilizers and pesticides
- 💧 Mix chemicals safely and carefully
- 💧 Install back-flow preventers on faucets
- 💧 Hold or participate in local Clean Sweep programs
- 💧 Maintain your septic system properly
- 💧 Follow recommended Best Management Practices (BMPs)
- 💧 Don't store old hazardous materials and chemicals



Water Conservation Tips

- 💧 Install low flow fixtures (toilet, showerhead, et.)
- 💧 Repair leaks and drips quickly
- 💧 Do only full loads of laundry or use water saving settings
- 💧 Reduce or eliminate lawn watering
- 💧 Reduce shower time
- 💧 Water plants or lawns only in the early morning
- 💧 Landscape with native or low water use plants
- 💧 Don't run the water while brushing teeth or doing dishes

If you would like more information on groundwater conservation and protection around the house contact your local DNR service center and ask for a copy of *Better Homes & Groundwater* PUB DG-070 or view it on the DNR Web site at www.dnr.state.wi.us/org/water/dwg/gw/bhgwater.htm.



Where can I get more information?

Department of Agriculture, Trade and Consumer Protection

Prairie Oak State Office Building
2811 Agriculture Drive
Madison, WI 53718
(608) 224-5002
Web site: datcp.state.wi.us



Department of Health and Family Services

One West Wilson Street
P.O. Box 2659
Madison, WI 53702
(608) 266-0923
Web site: www.dhfs.state.wi.us

Wisconsin Geological & Natural History Survey

3817 Mineral Point Road
Madison, WI 53705
(608) 262-1705
Web site: www.uwex.edu/wgnhs

Department of Commerce

Division of Safety and Buildings
201 West Washington Avenue
P.O. Box 7969
Madison, WI 53707
(608) 266-3815
Web site:
www.commerce.state.wi.us

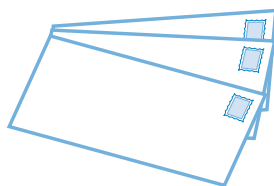
Central Wisconsin Groundwater Center

College of Natural Resources
Rm. 224
UW-Stevens Point
Stevens Point, WI 54481
(715) 346-4276
Web site: www.uwsp.edu/cnr/gndwater

UW- Madison, Nutrient and Pest Management Program

1535 Observatory Drive
UW- Madison

Mailing address:
1575 Linden Drive
Madison, WI 53706
(608) 265-2660
Web site: ipcm.wisc.edu



DNR Drinking Water & Groundwater Staff

The DNR has five regional offices statewide to serve you. Talk to your drinking water & groundwater specialist, at one of the DNR regional offices listed on the back of this brochure, or visit the DNR web site at www.dnr.state.wi.us. Choose "Drinking Water & Groundwater" from the drop-down menu, and select from a variety of listed topics, including brochures by title or topic, and the DNR staff directory.

Northern Region

810 W. Maple Street
Spooner, WI 54801
(715) 635-2101

Or

107 Sutliff Avenue
Rhinelander, WI 54501
(715) 365-8900

South Central Region

3911 Fish Hatchery Road
Fitchburg, WI 53711
(608) 275-3266

West Central Region

1300 W. Clairemont
PO Box 4001
Eau Claire, WI 54702-4001
(715) 839-3700

Southeast Region

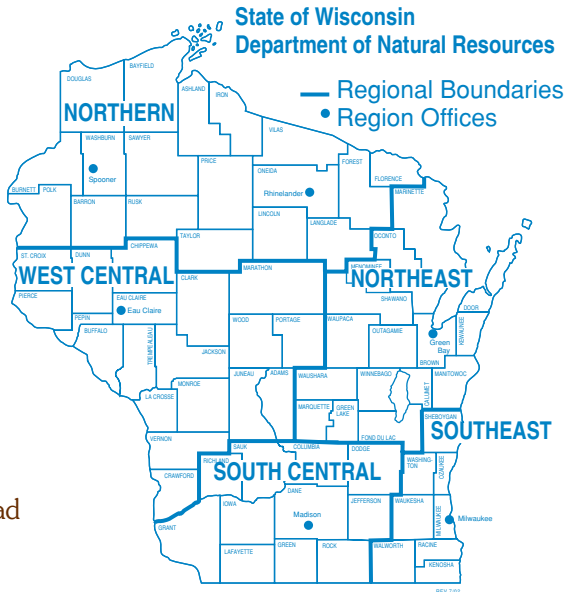
2300 N. Dr. Martin Luther
King Jr. Drive
PO Box 12436
Milwaukee, WI 53212
(414) 263-8500

Northeast Region

1125 N. Military Avenue
PO Box 10448
Green Bay, WI 54307-0448
(920) 492-5800

Central Office

101 S. Webster
PO Box 7921
Madison, WI 53707-7921
(608) 266-0821





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